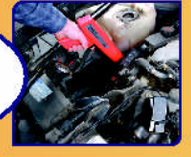
Solutions to your diagnostic problems

actron®
precision electronic solutions

Step 1
Is the Check Engine light on?

Step 2
Use a code scanner to "read" the Diagnostic Trouble Codes leading you to the problem area.

Step 3
Use Actron's diagnostic tools to troubleshoot and pin-point the problem.



Step 4
Repair the vehicle with the parts you need.

Step 5
Use a code scanner to "erase" Trouble Codes and turn off the "Check Engine" light once repairs completed.

Solutions

OBD II, what does it mean?

Important information you need to know

Generic OBD II diagnostic trouble codes for vehicles model year 1996 or newer.

U.S. Federal Government regulations require that all light duty vehicles (cars, vans and trucks whose gross weight is 8,500 lbs. or less) manufactured for sale in the U.S. beginning January 1, 1996 be OBD II compliant. In California the GW is extended to 14,000 pounds. Some vehicle manufacturers converted some of their engines to the OBD II standard beginning in model year 1994.

If you have a 1994 or 1995 light duty vehicle...

check the Vehicle Emissions Control Information decal located under the hood of your vehicle. Typical locations for this decal are: a shock tower, an engine valve cover, a wheel well, the fire wall, the underside of the hood, or a radiator support. On this label look for the "OBD II" acronym in the statement of emissions compliance. Make sure to look for the Roman numeral "II".

Enhanced OBD II diagnostic trouble codes (vehicle manufacturer specific codes).

Within each of the categories of DTC's (diagnostic trouble codes), the categories being Powertrain, Body, Chassis, and UART, there exists both generic and enhanced codes. The majority of our scan tools including the CP9135 OBD II AutoScanner™ (with the exception of the 9640 Professional Enhanced Scan Tool) are designed and sold as generic OBD II tools. They are guaranteed to retrieve and display generic codes.

Under some circumstances, the manufacturer will define and implement enhanced codes. Enhanced codes may be displayed on a generic scan tool. Their definitions will vary from manufacturer to manufacturer solely at their discretion, and are not defined by our generic OBD II tools. Enhanced codes are easily distinguished. The first numeric character of an enhanced code will be a "1" as opposed to a "0" or a "2", i.e., P0443 or P2443 is generic, P1443 is enhanced.

Part 1 Scan Tools & Code Scanners

If the Check Engine light is on, your vehicle is telling you there is a problem that is affecting performance, gas mileage, or emissions. You need to know why the light is on, how to fix it and how to turn the light off. Code Scanners "read and reset" the diagnostic trouble codes stored in the vehicle's computer memory.

Scanners

1982 - 1993	GM cars and light trucks:	CP9001 CodeScanner™
1983 - 1995	Ford cars and light trucks:	CP9015 CodeScanner™
1984 - 1995	Chrysler	No tools needed, see service manual
1985 - 1992	Honda	CP9025 CodeScanner™
1984 - 1992	Nissan	CP9025 CodeScanner™
1983 - 1992	Toyota	CP9025 CodeScanner™
1996 and newer:	All makes	CP9135 OBD II AutoScanner™

If The Check Engine Light Isn't On...

but the car "just doesn't run right", you may need to take the next step in diagnostic equipment... a Scan Tool. A scan tool will do everything the code scanner will do, and much more, including: read & erase codes, display live diagnostic data, record and playback live diagnostic data, other tests allowed by the vehicle maker.

Scan Tools

1996 and newer	All makes	CP9145 SUPER AutoScanner™
1984 and newer	GM cars and light trucks	CP9145 plus CP9127 kit
1984 and newer	Ford cars and light trucks	CP9145 plus CP9128 kit
1989 and newer	Chrysler cars and light trucks	CP9145 plus CP9129 kit
'84-'95 GM, '84-'95 Ford, '89-'95 Chrysler 1996 and newer - all makes		CP9150 SUPER AutoScanner™ Kit
Other accessories: Chrysler LH cable - CP9130 Ford MECs cable - CP9131		

Part 2

Sensor Testers & Multimeters

Sensors are the "eyes and ears" for the on-board computer. They tell the computer what's happening in the engine. Sensors can be expensive to replace, so it's a good idea to test them before replacing them. Ignition module and sensor testers test all types of vehicle sensors.

Sensor Testers

CP9087	Resistance sensors:	coolant temperature, air charge, intake air temperature, throttle position, mass air flow and manifold absolute pressure
	Voltage sensors:	oxygen sensor and others
	Frequency sensors:	mass air flow, manifold absolute pressure and others
	Hall Effect sensors:	camshaft position, crankshaft position and others
*2994	Sensor Simulator and Tester tests sensors, and can simulate sensors as well.	
*Available by special order. See sales associate for details.		

Basic Circuit Testing

Besides sensors, you may need to test circuits for voltage, resistance, and continuity. The most versatile tool for this job is the Digital Multi-Meter, or DMM for short.

Multi-Meters

CP7672	Our most economical DMM, featuring several ranges of DC volts, AC volts, Ohms, and amps.
CP7674	Featuring several ranges of DC volts, AC volts, Ohms, and amps, plus UL listing.
CP7665	DC volts, AC volts, DC amps, Ohms and battery test functions plus data hold feature.
CP7676	Adds the automotive-specific functions of RPM and dwell. These functions are measured from the primary side of the ignition coil and are useful on distributor equipped vehicles.
CP7677	All of the features of the CP7676 plus performs continuity test and has protective hoster.
CP7678	Includes all of the features of the CP7677 plus an automotive duty cycle function.
CP7680	Our top of the line DMM with frequency & temperature scales, autoranging, bar graph display, data hold and an inductive pickup for RPM measurement.

More Sensor Testers

The tools listed below may be called out in various service manual test procedures. Like multi-meters, circuit testers and test leads are among the basic tools required for simple electrical testing, as well as troubleshooting some electronic systems and components.

Circuit Testers & Leads

CP7841	Mini Circuit Tester quickly is our most basic circuit tester; designed for 12 volt vehicle electrical systems. It quickly and easily locates hot circuits.
CP7847	LED Circuit Tester represents the next level in circuit testers. Its 4 LED's illuminate at 4, 9, 12, and 13 volts respectively, allowing simplified determination of approximate circuit voltage level.
CP7863	Twin 5' Jumper Leads are equipped with high visibility color coded (red and black) coiled leads. Booted alligator clips are permanently attached to each end.
CP7866	Twin 5' Multimeter Lead Set are equipped with high visibility color coded (red and black) coiled leads. Multimeter probes with standard banana plugs are permanently attached to the coiled leads. Attachments allow them to be used as a jumper lead set.

Part 3 Fuel Pressure and Injection Testers

Fuel delivery is one of the three essential ingredients to make an engine run (the other two being air and spark). The fuel injection system uses a pump to move the fuel from the gas tank to the engine, and one or more injectors to spray it into the cylinder where it is burned.

Fuel System

CP7818	Fuel Pressure Tester Kit includes the fittings to connect to the majority of multi-port fuel injection systems. If your fuel system is not covered, optional adapters are probably available for your application, see store associate for details.
CP7817	Fuel Pressure Tester Kit with 0 - 60 PSI gauge is designed specifically for the low operating pressures encountered in the General Motors Throttle Body Injection (TBI) system used on many of their vehicles produced in the 1980's and 90's.
*2531	Fuel Injector & Harness Tester not only has the capability of pulsing the injectors, but can also read the signal from the injector harness as supplied by the vehicle computer. Includes adapters for most common injector connectors.
*Available by special order, see store associate for details.	

Part 4 Ignition System

Spark is one of the three essential ingredients to make an engine run (the other two being fuel and air). "Back in the day", ignition systems were simple: a coil, a distributor and a set of points. For the most part, those days are gone forever. Now we have electronic ignition both with, and without a distributor.

Ignition Testers

CP9087	Ignition Module and Sensor Tester will completely test the ignition modules used on many distributor equipped vehicles. The CP9087 includes an instruction manual that covers test procedures for GM, Ford, Chrysler, Toyota, Honda and Nissan ignition modules. The CP9087 also tests most computer sensors.
*2993	Ignition Module/KV Tester tests ignition modules & coils on both distributor and Distributorless Ignition System (DIS) vehicles. It also gives you a way to peak spark plug firing voltage on a running engine as well as full secondary ignition system diagnostic capability.*
*2968	Secondary Ignition Tester is a great way to do quick checks on the secondary ignition system, including peak KV measurements.*

*Available by special order, see store associate for details.

Ignition Timing

Even though ignition timing isn't adjustable on most modern vehicles, some diagnostic procedures require a timing light to verify that ignition timing is within specifications.

Timing Lights

CP7520	DC Power Timing Light is our most economical timing light. It's powered from the vehicle's 12 volt battery. Connects directly to the spark plug using the adapter. If your vehicle's spark plug is easily accessible & not recessed in a "spark plug well", this timing light does the job nicely.
P7504	Inductive Timing Light is economical with an inductive spark plug pickup. Simply clamp the inductive pickup around the spark plug wire; no adapters are required. The inductive pickup makes it simple to connect to spark plugs that are recessed in a "spark plug well".
CP7515	Chrome Inductive Timing Light, similar to CP7504 w/heavy duty chrome case & detachable leads.
CP7519	Timing Advance Analyzer is our best timing light. This timing light provides all the features of the CP7515 and adds the capability of checking both "base" and "advanced" timing. On almost all automotive engines, ignition timing changes with engine speed and/or load. Initial or base timing is only a starting point. If vehicle troubleshooting procedures have directed you to check timing advance calibrations, this is the tool for the job.

Part 5

Compression Testers

All internal combustion engines need good compression in order to run properly. If the valves and piston rings aren't in good condition, they can't seal the combustion chamber when the spark plug fires the air/fuel mixture. Compression testing is done by replacing each spark plug (one at a time) with a compression gauge. The engine is then cranked to build up pressure. Inconsistent pressure readings between cylinders can be a sign that a problem exists.

Compression

CP7821	Stem Compression Tester is an easy to use, economical compression tester. This tester is good for spark plugs that are not recessed in deep wells in the cylinder head.
CP7827	Compression Tester Kit is complete including heavy duty hose & adapters to fit 14mm & 18mm spark plug threads found on all modern gasoline engines in light duty vehicles.
CP7828	Professional Compression Tester Kit is our best & most complete kit. In addition to the 14mm & 18mm adapters, it includes 10mm and 12mm adapters. These adapters allow you to test compression in motorcycle and other small engine applications.

Remote Starters & Vacuum Testers

CP7853	Remote Starter Switch is an easy to use remote starter that offers a power tool type trigger switch, heavy-duty neoprene leads, and alligator clips with insulated boots

All gasoline engines develop vacuum (negative pressure) in the intake manifold. Like compression, vacuum is a good measure of the engine's mechanical condition. Vehicle manufactures make use of engine vacuum to drive many different devices such as vacuum, EGR valves, PCV valves & ventilation dampers, etc.

Vacuum

CP7803	Vacuum & Pressure Tester Kit checks engine vacuum and includes the following: 3½" diameter, 0 - 30", 0 - 10 psi compound gauge, 24" hose, miscellaneous adapters
CP7830	Hand Vacuum Pump provides a source of vacuum for checking vacuum-controlled devices. Its built in 0 - 30" gauge can also be used as a stand alone gauge for checking engine vacuum. Includes: rugged steel handle frame, solid brass cylinder, cylinder head and piston, 24" hose with tapered hose adapter, cushioned handle grips, barbed brass hose fitting
CP7850	Includes CP7830 and CP7840 Brake Bleed Kit